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EXAMINER

GRAHAM, ANDREW R

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,695

Applicant(s)

YAMAMOTO ET AL.

Examiner

Andrew Graham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "P₁, P₂, D₁, D₂, D₃, D₄" in Figure 2. It appears that these reference characters are associated with the "P₁, P₂, D₁, D₂, D₃, D₄" of the specification, but for clarity, appropriate correction of the subscript in either the drawings or the specification is required. The reference in the specification can be found on page 7, lines 1-4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective

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action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because it contains a number of minor informalities. The list below cites the informalities that have been observed by the examiner, though the applicant's assistance is respectfully requested in correcting any other such informalities that are not listed below.

- page 8, line 20 contains the equation: " $P = (TFL + TFR)L_1$ and $(TRL + TRR)L_2$ ". It is unclear whether or not the "and" is intended to be interpreted as a mathematical "+" or if the equation is intended to be interpreted as " $P = (TFL + TFR)L_1$ " and " $P = (TRL + TRR)L_2$ "
- page 9, line 12, " k_R " should be " k_R "
- page 9, line 13, contains the expression: " $(k_R = 1.0 - 0.0)$ " which, based on the context of the claim, is interpreted to mean that k_R has a value in the range from 1.0 to 0.0. To clearly convey this however, this statement should be written as " $(1.0 \geq k_R \geq 0.0)$ "
- page 9, line 15: " K_{RL} " should be " k_{RL} "
- page 9, lines 18-19, contain equation (9), which is stated to be derived from equations 4, 6, 7, and 8. However, this derivation does not clearly result in the equality listed for equation (9). Specifically, equation (9) states:

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$$K_F = \{(K + k_{FL}) + (K + k_{FR})\}L_1 + k_R\{(K + k_{RL}) + (K + k_{RR})\}L_2$$

$$= \{(K + k_{FL}) + (K + k_{FR})\}L_1 + \{(K + k_{RL}) + (K + k_{RR})\}L_2$$

For clarity, $\{(K + k_{FL}) + (K + k_{FR})\}L_1$ will be referred to as "A"

and $\{(K + k_{RL}) + (K + k_{RR})\}L_2$ will be referred to as "B".

In these terms, Equation 4 states:

$P = A + B$ (interpreting "and" as "+"), as noted above.

Equation (6) states:

$$P_F = K_F(A)$$

Equation (8) states:

$$P_R = k_R(B)$$

Equation (7) states:

$$P = P_F + P_R$$

Substituting Equations (6) and (8) into Equation (7) leaves:

$$P = K_F(A) + k_R(B)$$

Substituting Equation (4) into this leaves:

$$A + B = K_F(A) + k_R(B)$$

From this equation though, it is unclear how the equation of:

$K_R = A + k_R(B) = A + B$ may be derived, which is what is stated in Equation (9). Appropriate correction or clarification is required.

- page 9, line 22, " k_{FL} " should be " k_{RL} "
- page 9, lines 21 and 22, a "}" is missing from each line in the equation. Also, the applicant is asked to clarify which

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of the terms of the first line are intended to be divided by the second line.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C.

112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5, 9-10, and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the increased volumes of the front and rear speaker and of the rear or front speaker are computed" in the fourth and fifth line of the claim. Claim 3, from which Claim 5 depends, only specifies "an increased volume" which is singular. Also, the "an increased volume" is detailed in Claim 3 for "at the rear or front speaker" not "at the front or rear speaker". A decreased volume is detailed for the volume "at the front or rear speaker". Accordingly, there is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the same limitation as Claim 5, lacking the same antecedent basis as cited above, and is rejected for the same reasons.

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Claim 10 recites the limitation "said digital control unit" in the fourth and fifth line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "amplified by the amplifiers" in the sixth line of the claim. There is insufficient antecedent basis for this limitation in the claim. The amplifiers are listed as "one or more", which does not require the number of amplifiers to be plural, as suggested in the cited part of line 6 of the claim. A suggested, acceptable change to overcome this rejection would be to change this phrase to "amplified by the one or more amplifiers".

Claims 14-16 are rejected due to their respective dependencies upon Claim 13.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claim 11** is rejected under 35 U.S.C. 102(b) as being anticipated by d'Alayer de Costemore d'Arc (USPN 5271063).

d'Alayer de Costemore d'Arc discloses a system for controlling the production of sound in a vehicle, wherein one of the features involves adjusting the respective sound output volumes between front

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(42) and rear (44) speakers (col. 4, lines 59-68 and col. 5, lines 1-3). The context and function of this system reads on "A volume controller for controlling volume to one or more speakers". This volume adjustment is conducted by a function adjustment control (5) which is associated with a function selecting control (6) (col. 3, lines 54-59 and col. 4, lines 67-68 and col. 5, lines 1-2). The system of d'Alayer de Costemore d'Arc also includes a control unit (10) that initializes previously stored settings of the audio system output and also enables an adjustment circuit (12) to alter the output of an audio signal, based on the controls provided by the function controls (5,6) (col. 4, lines 67-68 and col. 4, lines 1-10 and 27-63). This unit (10) comprises a microprocessor, which reads on "a digital controller comprising a CPU and operable to generate control signals". The control unit (10) transmits equalization instructions to an adjustment unit (12) (col. 3, lines 33-38). This unit (12) and its response to the instructions from the control unit (10) reads on "one or more attenuators corresponding respectively to each one of the one or more amplifiers and operable to attenuate the audio signals amplified by the amplifiers based on control signals". The output is applied to an amplifier (14) that transmits the amplified signal to one or more loudspeakers (16), which reads on "one or more amplifiers corresponding respectively to each of one or more speakers and operable to respectively amplify audio signals to each of the corresponding speakers".

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 6, 10-12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over d'Alayer de Costemore d'Arc (USPN 5271063) in view of Cherry (USPN 3702901).

d'Alayer de Costemore d'Arc discloses a system for controlling the production of sound in a vehicle, wherein one of the features involves adjusting the respective sound output volumes between front (42) and rear (44) speakers (col. 4, lines 59-68 and col. 5, lines 1-3). The context and function of this system reads on "A volume controller for controlling volume balance between a front speaker and a rear speaker located within a vehicle". This volume adjustment is conducted by a function adjustment control (5) which is associated with a function selecting control (6) (col. 3, lines 54-59 and col. 4, lines 67-68 and col. 5, lines 1-2). These controls (5,6), along with the circuitry that converts the mechanical input to an electrical equivalent, reads on "a fade volume computing unit for computing an amplifying factor of an input signal for providing an increased volume at the rear or front speaker". The system of d'Alayer de Costemore d'Arc also includes a control unit (10) that initializes previously

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stored settings of the audio system output and also enables an adjustment circuit (12) to alter the output of an audio signal, based on the controls provided by the function controls (5,6) (col. 4, lines 67-68 and col. 4, lines 1-10 and 27-63). This unit (10) reads on "a control unit". The system includes a memory for storing the audio function parameters, including the fade setting (col. 4, lines 1-3). Upon a change being made to the setting of the fade function, this new setting is applied and then stored (col. 5, lines 2-3). After the new setting has been stored, the operation of the program involves returning the operation of program to its starting point (col. 5, lines 43-46). Collectively, the storage of the new setting and the restarting of the program that controls the operation of the system reads on "capable of dealing with a next fade input with attenuations changed by the amplifying factor k_1 and the attenuating factor K_1 recorded and newly set upon completion of the fade volume computing".

However, d'Alayer de Costemore d'Arc does not specify or clearly disclose:

- that the amplifying factor k_1 for providing an increased volume at the rear or front speaker is equal to a decreased volume at the front or rear speaker when an input signal is attenuated by an attenuating factor K_1 , so that when a balancing point is moved from a prescribed position, a total volume within the vehicle is unchanged
- that the control unit multiplies that signal supplied to the rear or front speaker by the amplifying factor k_1

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Cherry discloses a volume balance and fader control circuit for a four channel sound reproducing system wherein the average total volume of the sum of the four channels is not affected by adjusting the balance and fader controls of the system (col. 1, lines 59-67 and col. 2, lines 1-3). In the system of Cherry, adjusting the balance or fader control merely changes the division of DC power and not the sum or overall total gain of the channels (col. 2, lines 16-20). Cherry discloses the system's use in an automobile (col. 3-lines 19-22 and see figures 2 and 3) and that the operator of the auto can balance himself to be in the center of sound (col. 3- lines 41-45). The context of the device also reads on "A volume controller for controlling volume balance between a front speaker and a rear speaker located in a vehicle" (Figure 2). Cherry discloses a balance control for the left and right speaker balancing as well as a fader control for front and back speaker balancing (col. 3-lines 63-67 and col. 4- lines 1-2) which together control the relative output volume of the four channels. Cherry further discloses a potentiometer which acts as the fader control for balancing the audio condition between the forward 22, 26 and back 20, 24 sets of speakers, wherein one end is connected to the first and third channels 36, 40 and the other end is connected to the second and fourth 38, 42 channels (col. 4-lines 40-58). The potentiometer is connected as a voltage divider with a movable contactor dividing the a fixed amount (for example k_1, K_1) of DC voltage between the forward and rear sets of channels (col. 5, lines 1-4) but providing the total sum of DC voltage remains the same

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(col. 4-lines 49- 53). This potentiometer (62) and the connected resistances (70,72,74,76,78,80,82,84) involved with the application of the adjustment to the individual speaker circuits reads on "a fade volume computing unit for computing an amplifying factor k_1 of an input signal for providing an increased volume at the rear or front speaker which is equal to a decreased volume at the front or rear speaker when an input signal is attenuated by an attenuating factor K_1 ". The effect of such a connection, Cherry discloses, is that a constant volume is established, despite the respective changes made to the fader controls (col. 5, lines 45-49). This reads on "so that when a balancing point is moved from a prescribed position, a total volume within the vehicle is unchanged". In the system of Cherry, the established volume controls are implemented through a transistor (46) which operates an amplifier (38) that together constitute a translating and amplifier stage (col. 4, lines 12-38). The application of such control over the amplitude of the signal applied to each speaker reads on "multiplying the signal supplied to the rear or front speaker by the amplifying factor k_1 when the input signal supplied to the front or rear speaker is attenuated by the attenuating factor K_1 ".

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the fade control and gain adjustment components of the system of Cherry into the corresponding control and attenuating stages of the system of d'Alayer de Costemore d'Arc. The motivation behind such a modification would

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have been that such a modification would have collectively enabled a user operating the fade control in the system of d'Alayer de Costemore d'Arc to place the user at the center of the reproduced sound field through the use of a single control, without affecting the average total volume of the sound field. This constant sound volume would have been maintained during the process of balancing, which would have prevented the user from increasing the volume sound field to an undesirable degree while manipulating the relative volume of a speaker or a set of speakers involved with reproducing the sound field.

Regarding **Claim 2**, please refer above to the rejection of similar limitations of Claim 1. It is further noted that the system of Cherry enables user to place himself or herself in the center of the sound field (col. 5, lines 33-36). The two respective gain controls provided are a balance and fade, wherein fade alters the relative levels of front and back speakers at all left-right balance positions within the vehicle space (col. 4, lines 20-26 and 27-36 and col. 5, lines 27-36). The signal processing of these individual controls is individually applied to the translating and amplifier stage. This context of operation for a fader reads on "at a prescribed location within the vehicle" and "the prescribed position is located at the center of a front, at a center of a rear seat, or a center between the front seat and rear seat".

Regarding **Claim 6**, please refer above to the rejection of the limitation of Claim 2.

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Regarding **Claim 10**, the system of d'Alayer de Costemore d'Arc includes a control unit (10) that comprises a microprocessor (col. 3, lines 30-32). This reads on "a digital central processing unit (CPU)". Also included in the system is a memory (11) that contains initial parameters for controlling the audio function, which reads on "a preset value recording unit operable to record attenuation values corresponding to the front and rear speakers" (col. 3, lines 27-33). The control unit (10), under the program being executed by the microprocessor, pulls the initial parameters for the audio function of the system from this memory (11), which reads on "said CPU controls a transfer of data between said digital control unit and said preset value recording unit".

Regarding **Claim 11**, please refer above to the rejection of the similar limitations of Claim 1. The adjustment of the fade value in the system of d'Alayer de Costemore d'Arc results in a new digital value to be stored, which in the context of the value computation of Cherry reads on "a digital fade volume computing unit" (col. 5, lines 2-3 of d'Alayer de Costemore d'Arc). The control unit of d'Alayer de Costemore d'Arc involves a microprocessor, which in the context of the application of a control signal in the system of Cherry reads on "a digital control unit".

Regarding **Claim 12**, the control unit (10) of d'Alayer de Costemore d'Arc connects to an adjustment circuit (12) which are connected through an "I2C" bus (col. 3, lines 41-49 and 62-66). This bus, including the involved connections to the components and the part

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of the adjustment circuit that implements the effects of the control signal, reads on "an interface device operable to received digital data from said digital control unit and provide control data to one or more attenuators operable to attenuate the signal by the attenuating factor".

Regarding **Claim 14**, please refer above to the rejection of the similar limitation of Claim 1, noting again that the that volume of sound output by the four channels is not affected by the fader adjustments made according to the system of Cherry (col. 2, lines 1-3).

Regarding **Claim 15**, please refer above to the rejection of the similar limitations of Claims 1 and 10.

7. **Claims 3-5, 7-9, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over d'Alayer de Costemore d'Arc in view of Cherry as applied above, and in further view of Craven et al (USPN 5511129). Hereafter, "Craven et al" will be referred to as "Craven".

As detailed above, d'Alayer de Costemore d'Arc discloses a system for controlling the production of sound in a vehicle, wherein one of the features involves adjusting the respective sound output volumes between front (42) and rear (44) speakers. Cherry discloses a method for implementing such fading so that the overall volume of the sound field reproduced in the automobile remains constant. The adjustments disclosed in the systems of d'Alayer de Costemore d'Arc and Cherry are based on the desired fading characteristics implemented by the user.

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However, d'Alayer de Costemore d'Arc taken in view of Cherry does not specify:

- that attenuations when acoustic waves from the front speaker and rear speaker are propagated to the prescribed location are previously recorded
- that on the basis of these attenuations, the increased and decreased volumes at the front or rear speaker are determined

Craven discloses a system for compensating an audio signal in a space that includes a loudspeaker, based on the amplitude characteristic imparted on the perceived audio by the space. One example of such a space is an automobile (col. 36, lines 11-44). The compensation involves the use of a filter (5), wherein the processing of the filter is based on coefficients obtained from a coefficient calculator (6). One aspect of the filter processing involves the modifying the amplitude of the output signal, wherein the ideal amplitude output is flat across the entire emitted audio spectrum (col. 9, lines 50-52). The coefficients are calculated according to a zone in which the listener is expected to be located in the space, multiple measurements are taken in the space, and the coefficients are supplied to the filter for subsequent processing (col. 10, lines 45-67 and col. 11, lines 1-14). The calculation is done in view of the measured response with a modified amplitude, taken in view of the ideal response which is permanently stored in the coefficient calculator (6) (col. 9, lines 66-67 and col. 12, lines 26-55). Craven

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also notes the situation in which the proportions of signals received at a point in space of with multiple speakers is corrected (col. 32, lines 39-61). The determination of amplitude corrections for subsequent processing by the filters reads on "attenuations when acoustic waves from the front speaker and rear speaker are propagated to the prescribed position are previously recorded". The implementation of the determined amplitude corrections reads on "on the basis of the attenuations, the increased and decreased volumes at the front or rear speaker are computed".

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the amplitude corrections for at least the frequency band of the loudspeaker outputs as part of the adjustment circuit of the system of d'Alayer de Costemore d'Arc in view of Cherry. The motivation behind such a modification would have been that such corrections would have improved the emitted sound field in view of the ideal response and the effects imparted by the output environment.

Regarding **Claim 4**, the signal upon which the coefficient calculator (6) in the system of Craven is based on inputs received at locations representing a listening zone from the output of the speakers in the reproduction environment (col. 6, lines 46-67; col. 10, lines 45-59; col. 31, lines 27-42; col. 36, lines 11-44). This derivation reads on "the attenuations are computed on the basis of an input indicative of a relationship between the prescribed position and positions where the front and rear speakers are located".

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Regarding **Claim 5**, the adjustment in the system of Cherry includes a main volume control (64) that controls the volume adjustments at each of the speakers (col. 5, lines 20-25) and d'Alayer de Costemore d'Arc discloses such a function being the default of the adjustment control (col. 4, lines 3-5). Collectively, these two teachings read on "the increased volumes of the front or rear speaker and of the rear or front speaker are computed on an adjustment value in a level adjusting means to be connected to the front speaker and the rear speaker".

Regarding **Claim 7**, please refer above to the rejection of the limitation of Claim 3.

Regarding **Claim 8**, please refer above to the rejection of the limitation of Claim 4.

Regarding **Claim 9**, please refer above to the rejection of the limitation of Claim 5.

Regarding **Claim 16**, please refer above to the rejection of the limitation of Claim 3, noting that the coefficient calculator (6) of Craven calculates the amplification correction values based on the stored input microphone signals, which are derived according to a zone of expected listening in an acoustic environment (col. 10, lines 45-59 and col. 11, lines 44-47).

Response to Arguments

8. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vogt et al (USPN 5491755) also discloses a microprocessor controlled circuit that processes audio signals according to certain functions, one of which is a fade function (Fig. 7c).

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 703-308-6729. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AG

Andrew Graham
Examiner
A.U. 2644

ag

September 27, 2004


XU MEI
PRIMARY EXAMINER